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(DEP 0128)

### REMARKS

Claims 1, 3-16, 19-23 are pending in the present application. Claim 3 has been canceled, Claims 15 and 21 have been amended, leaving Claims 1, 4-16, and 19-23 for consideration upon entry of the present Amendment. Support for the amendment to Claim 15 is found in Claims 1, 13, and 15 as originally filed. Support for the amendment to Claim 21 is found on Page 8, 2<sup>nd</sup> full paragraph of the Specification. No new matter has been introduced by these amendments. Reconsideration and allowance of the claims is respectfully requested in view of the above amendments and the following remarks.

#### Claim Objections

Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicants have canceled the claim.

#### Claim Rejections Under 35 U.S.C. §112, Second Paragraph

Claim 3 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regards as the invention. Claim 3 has been canceled.

#### Claim Rejections Under 35 U.S.C. §102(b)

Claims 1, 3, 5-14, 16 and 23 stand rejected under 35 U.S.C. §102(b), as allegedly anticipated by U.S. Patent No. 5,051,392 to Mabilon et al. ("Mabilon"). With regards to Claim 1, it is alleged that Mabilon discloses a catalyst for nitrogen oxides (Column 1, lines 18-20) comprising a porous layer containing calcium and neodymium (Abstract). With regards to Claim 3, it is alleged that Mabilon discloses about 0.1 to about 35% calcium and neodymium (Abstract). With regards to Claims 5-6, it is alleged that Mabilon discloses calcium (Abstract). With regards to Claims 7-8, it is alleged that Mabilon discloses neodymium. With regards to Claims 9-12, it is alleged that Mabilon discloses 0-35% zirconium (Column 2, lines 32-37). With regards to Claims 13-14, it is alleged that Mabilon discloses mixing ammonia with alumina (Column 5, lines 64-68 and Example 16). Claim 16 has been rejected as it is alleged that Mabilon discloses a catalyst for nitrogen oxides

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(Column 1, lines 18-20) comprising a porous layer containing mixtures of calcium and neodymium (Abstract), zeolite (Column 3, line 54), 0-35% zirconium (Column 2, lines 32-37), and ceramic (Column 3, line 26). With regards to Claim 23, it is alleged that Mabilon discloses oxides of calcium and neodymium (Abstract). Applicants have canceled Claim 3. Applicants respectfully traverse the remainder of the rejections.

Mabilon teaches a catalyst having a porous layer, wherein the porous layer comprises at least one refractory inorganic oxide; about 0.1 to about 25% of at least one uranium oxide; about 0.1 to about 35% of at least one oxide of at least one metal selected from the group consisting of lithium, sodium, potassium, rubidium, cesium, beryllium, magnesium, calcium, strontium, barium, lanthanum, praseodymium, neodymium, gadolinium, yttrium, and zirconium; and a catalytically active phase. Applicants' Claims 1 and 16, however, claim in part a NO<sub>x</sub> occluding catalyst comprising an outer layer having at least about 50 wt% of an alkaline earth component, and not more than about 42 wt% of a rare earth component.

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Varient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987). Applicants submit that because Mabilon only discloses a catalyst comprising about 0.1 to about 35% of at least one oxide of at least one metal wherein the metal may be selected from beryllium, magnesium, calcium, strontium, and barium among others, Mabilon does not anticipate Claims 1 and 16 which call for at least about 50 weight percent of an alkaline earth component. Applicants submit that "at least about 50 weight percent" is outside the reasonable range taught in Mabilon. The Examiner has rejected this argument citing *In re Morris* where the court held that claims must be given their broadest reasonable interpretation. *In re Morris*, 127 F.3d 1048, 1054-55 (Fed. Cir. 1997). Giving a claim its "broadest reasonable interpretation" does not mean that a specific claim element can be ignored. Applicants claim "at least about 50 wt%" of an alkaline earth component. In contrast, Mabilon discloses "about 0.1 to about 35 wt%". Even at a broadest reasonable interpretation, 35 wt% can not be interpreted as equivalent to "at least about 50 wt%". As the range of "at least about 70 wt%" is outside of Mabilon's range (Applicant's Claim 4 which was not rejected), "at least about 50 wt%" is similarly outside of Mabilon's range. Consequently, Applicant's range is outside of the range taught by Mabilon; Applicants' catalyst is a different catalyst.

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Therefore, as Mabilon does not disclose a catalyst comprising at least about 50 wt% of an alkaline earth component, Mabilon does not disclose every element of Applicants' independent Claims 1 and 16, Mabilon fails to anticipate or render obvious the present application. Reconsideration and withdrawal of this rejection is requested.

Claims 1-4 and 16-23 are rejected under 102(b) as anticipated by U.S. Patent No. 4,988,660 to Campbell et al. ("Campbell"). Claim 1 has been rejected as it is alleged that Campbell discloses catalysts comprising neodymium (Column 3, line 45) and calcium (Column 7, lines 52-60). Claims 2-4 and 19 are rejected as Campbell allegedly discloses up to about 60% calcium oxide (Column 7, lines 52-60), neodymium (Column 3, line 45), zirconia (Column 7, lines 66-67), and alumina (Column 8, lines 14-18). In addition to the reasons listed above, Claims 16 and 20-22 are further rejected as Campbell allegedly teaches the use of binder (Column 7, lines 38-40). It is further alleged that the claimed ranges of components include zero except the alkaline earth oxide, which is an approximation. Claim 23 is rejected as it is alleged that Campbell discloses calcium oxide (Column 7, lines 52-60). Applicants point out that they have canceled Claims 2, 17, and 18 in a response filed on 1/9/2002. Applicants have also canceled Claim 3. Applicants respectfully traverse the Examiner's rejections of Claims 1, 4, 16, and 19-23.

Campbell discloses alkali metal doped perovskites useful in the oxidative coupling of alkanes to higher hydrocarbons (Abstract). Perovskites are very specific compounds. Campbell does not teach or suggest that these compounds are NO<sub>x</sub> occluding catalysts, and Applicants submit that artisans do not consider perovskites as useful in NO<sub>x</sub> reduction. Therefore, Applicants submit that Campbell does not teach a NO<sub>x</sub> occluding catalyst; hence, Claims 1, 16, and 20 contain limitations not taught in Campbell. To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine*, 3 U.S.P.Q.2d 1766. Because Applicants' claimed NO<sub>x</sub> occluding element is not disclosed in Campbell, Campbell cannot anticipate independent Claims 1, 16, 20, and 21 under §102(b). Therefore, Claims 1, 16, 20, and 21 are allowable. If a reference does not anticipate an independent claim, it cannot anticipate claims dependent on that unanticipated claim. As such, dependent Claims 4, 19, and 22-23 are also allowable.

The Examiner contends that "It is argued that Campbell discloses an alkali metal doped perovskites useful in oxidative coupling of alkanes. This is not persuasive because a

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recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim." (Paper 5, page 6) Based upon the Examiner's contention, the present application is allowable. Applicants do not recite an "intended use" in the preamble, but set forth a limitation of a "NOx occluding catalyst structure...". As stated in the prior response, "Pervoskites are very specific compounds. Campbell does not teach or suggest that these compounds are NOx occluding catalysts, and Applicants submit that artisans do not consider pervoskites as useful in NOx reduction." (Amendment dated January 9, 2002, Page 4). In other words, Applicants content that perovskites are structurally different and that the prior art structure is not capable of being a NOx occluding catalyst structure as claimed in the present application. Therefore, Campbell does not meet the claims of the present application.

With respect to the claim ranges, Applicants again assert that "at least about 70 wt%" is different from and does not include about 0.1 to 60 wt%, and that an artisan would not interpret, even given the broadest interpretation, at least about 70 wt% as including about 0.1 to 60 wt%. Giving a broad interpretation does not equate to ignoring claim elements.

Claims 21-23 are rejected under 102(b) as anticipated by U.S. Patent No. 5,545,604 to Demmel et al. ("Demmel"). Claims 21-22 are rejected as it is alleged that Demmel discloses a catalyst comprising 50-95% calcium oxide in the final product (Column 15, lines 49-53), alumina as binder, and 40% alumina (Column 31-33 and 36-38). The Examiner states that all the claimed ranges of components include zero except the alkaline earth oxide, which is an approximation. Claim 23 is allegedly anticipated by Demmel as it is alleged that Demmel discloses CaO (Column 15, lines 49-53). Applicants have amended Claim 21 to overcome the Examiner's rejection.

Demmel discloses a process for reacting bastnaesite with at least one alkaline-earth metal-containing material to ultimately form certain bastnaesite/alkaline-earth metal oxide compounds wherein the bastnaesite and at least one alkaline-earth metal-containing component are chemically reacted with each other (Column 7, lines 11-17). The compounds resulting from such chemical reactions may be associated with other materials through the use of matrix-forming binder materials (Column 7, lines 17-19). Demmel also teaches that the alkaline-earth metal-containing ingredients taking part in the chemical reactions can be

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obtained from alkaline-earth metal-containing materials such as salts of such alkaline-earth metals, and especially from magnesium salts used in conjunction with various alumina-containing ingredients such as alumina (Column 7, lines 22-28). Applicants submit that Claim 21 differs from Demmel in that Claim 21 specifies that the stabilizer includes silicon, titanium, zirconium, and oxides thereof. Applicants submit that Demmel teaches neither the use of these particular stabilizers nor the amount of these stabilizers. Based on this amendment, Applicants submit that independent Claim 21, and its dependent Claim 22, should now stand allowed. With regard to Claim 23, Applicants submit that as a reference that does not anticipate an independent claim, cannot anticipate the corresponding dependent claim, Claim 23, which is dependent on Claim 1, which is not rejected by the Examiner in light of Demmel, should stand allowed.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and withdrawal of the rejection, and allowance of the case is requested.

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If there are any additional charges with respect to this Amendment or otherwise,  
please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

A marked-up version of Claim 15 follows:

Claim 15. (Amended/marked-up) A catalyst for treating an exhaust gas stream comprising a NO<sub>x</sub> occluding catalyst structure having an outer layer comprising:

an alkaline earth component;

a rare earth component; and

a binder wherein the binder is selected from the group consisting of acidic aluminum oxide sol, alkaline aluminum oxide sol, ammonium aluminum oxide sol, and mixtures thereof, and~~The catalyst of Claim 13 wherein the outer layer comprises a binder is present in~~  
an amount of at least about 2 wt%, and less than about 6 wt%.

21. (Amended/marked-up) A catalyst for treating an exhaust gas stream comprising:

a NO<sub>x</sub> occluding catalyst structure having an outer layer comprising at least about 70 wt% calcium oxide component, not more than about 25 wt % neodymium oxide component, not more than about 3 wt% stabilizer, wherein said stabilizer includes silicon, titanium, zirconium, and oxides thereof, and at least about 2 wt% binder.